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0-185

5 December 1956

MEMORANDUM FOR: THE RECORD**SUBJECT : Project Monitor at []**

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1. Time and Place of Meeting: 28 November 1956, at []

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2. Attendance:3. Discussion:

a. The following schedule is in effect for the delivery of the various microphones:

<u>Microphone</u>	<u>Delivery Date</u>
1st B unit	15 October
1st B-A unit	15 December
1st B-B unit	before 31 March 1957
5 type B and 5 type B-A	28 February 1957
5 type B-B	31 March 1957
1st Shoe Heel	31 March 1957
5 Shoe Heel	30 June 1957

The "B" unit is the standard model delivered already. The B-A unit is the cut down version with the pre-amplifier. The type B-B unit is the standard model with a transistor preamplifier. Since a good deal of the microphone construction is done by [] and his assistant, the units are practically a hand-made job. Thus, the delay of 3-4 months between the first prototype and the remaining five.

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[] agreed to build an impedance matching network to couple the output of the transistor preamp (1000 ohms) to the input of a recorder. The output impedance of the network will be 50 ohms balanced. Provision will also be made to supply DC to the transistor as well as a means of adjusting the level of the output signal.

b. [] indicated that they would be willing to take on a 3-4 month study proposal of a miniature receiver to be used in the ear. This study phase would look into the problem more thoroughly and decide

what feasible approach

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what feasible approach to take. A proposal on this problem is expected by the middle of December. [] also expressed continued interest in taking on the problem of building a small, high-quality dynamic microphone. The following tentative characteristics were discussed:

- (1) Maximum dimensions - $3/4$ " diameter, $3/8$ " thickness
- (2) Frequency Response - at least to 6000 cps. Low end would depend on final dimensions
- (3) Adaptability for probe and transistor preamplifier. Because of the work schedule outlined in paragraph a., [] felt that this task could not get under way before 1 April 1957.

c. When the subject of a briefcase recorder was brought up, [] at first indicated that because of lack of manpower they could not undertake this job. However, further discussion brought out that [] is basically a bit weary of tackling a development job of this nature which calls for a finished product. Also, they were a bit cautious on their ability to meet some of the specifications which we had mentioned last time. The one that seemed to concern them the most was the fact that the recorder had to operate extremely silently. However, the undersigned felt that [] had an interest in doing work in this field and that if some sort of agreement could be reached, especially concerning the intent of using specifications, they would undertake the task. In this regard, [] was told that the specifications were to be considered design goals rather than rigid requirements that would be used to judge the acceptability of their work. A copy of the specifications will be sent to them for study as soon as the final form is completed.

d. [] has designed an eight channel system covering from 1973 to 2232 cps as an initial effort in putting together a system covering from 700-3800 cps. His design bandwidths are 3 db less than the critical bandwidth and vary from $3\frac{1}{4}$ cps at the low frequency (1973) to 40 cps at 2232. His circuit consists of a tuned circuit followed by a diode threshold circuit. Thus, the bandwidth obtained is a function of level. He has tried to achieve a threshold device such that when it is properly adjusted, a 1db change in the input from the threshold value will give a 20 db output. Thus, the input-output curve would theoretically be:

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There is little that can be done to test the effectiveness of the device until enough channels are built to cover a good portion of the speech range. The true test of the device will come when a signal which is composed of noise and speech (which is unintelligible) is fed into the device. If some degree of intelligibility is then obtained, the device will be deemed useful.

e. Studies are continuing on the possibilities of using arrays of elements to form a directional microphone. These methods depend on the proper phasing of the outputs of the various elements as well as the proper spacing between elements. As a result, most of the systems have directivity patterns that are sensitive to frequency and good results can only be obtained over a narrow band.

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Distribution:

Orig. - P-119B

1 - P-185 ✓

1 - TSS/TAG

1 - AFD Chrono

TSS/AFD/[Redacted]/bf (5 Dec 56)

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